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**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference M/44295-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/12527	International filing date (day/month/year) 10.11.2003	Priority date (day/month/year) 11.11.2002
International Patent Classification (IPC) or both national classification and IPC H01M8/02, H01M8/04, H01M8/24		
Applicant NUVERA FUEL CELLS EUROPE S.R.L. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.  
  
☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  
  
These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:  
  
I ☒ Basis of the opinion  
II ☐ Priority  
III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  
IV ☐ Lack of unity of invention  
V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement  
VI ☐ Certain documents cited  
VII ☐ Certain defects in the international application  
VIII ☐ Certain observations on the international application

Date of submission of the demand  11.06.2004	Date of completion of this report  13.05.2005
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Wiedemann, E  Telephone No. +49 89 2399-7542  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/EP 03/12527**

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-17 as originally filed

**Claims, Numbers**

1-15 received on 26.04.2005 with letter of 26.04.2005

**Drawings, Sheets**

1/8-8/8 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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International application No. **PCT/EP 03/12527**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	1-15
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/12527

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1) Reference is made to the following documents:

- D1: EP-A-0 999 605 (HONDA MOTOR CO LTD) 10 May 2000 (2000-05-10)
- D2: US-A-3 926 676 (FRIE WOLFGANG ET AL) 16 December 1975 (1975-12-16)
- D3: US-A-4 233 146 (KATTERMANN DIETRICH E ET AL) 11 November 1980 (1980-11-11)
- D4: GB-A-1 214 359 (ALLMANNA SVENSKA ELEKTRISKA AKTIEBOLAGET) 2 December 1970 (1970-12-02)

2) Amendments

The amendments filed with the letter dated 26.04.2005 fulfill the requirements of Article 34 (2) PCT. The amendment concerns independent claim 1, which is now a combination of claims 1 and 2 as originally filed.

2) Novelty

The subject-matter of claims 1-15 is considered to be novel, Article 33 (1) and (2) PCT. Document D1 discloses an electrochemical generator with a fluid distribution device inside the generator. The fluid is uniformly delivered to each of the fuel cell units and is uniformly distributed to the active areas of the cells. As can be seen from the Figures 8, 11 and 12 the pressure drop of the distribution or inlet part is not similar to the exhaust or outlet part. Consequently, the pressure drop of the inlet and outlet is asymmetric. Further, the document recognizes the influence of the channel diameter, the length of a channel and the coefficient of friction on the behaviour of the pressure.

Document D2 discloses a electrolytic fluid distribution/cooling system in a fuel cell comprising main inlet and outlet channels and distribution / collecting channels to uniformly distribute the fluid in the active areas. The pressure loss in the respective areas is different, it is smaller in the supply part and higher in the discharge part. Since the document concerns the distribution of electrolyte and not reaction gases, it is not considered to be relevant for novelty.

None of the relevant documents disclose a device for the distribution of reaction gases where the pressure drop in the feed device is lower than in the extraction device.

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**3) Inventive Step**

The subject-matter of claims 1-15 is considered to be based on an inventive step, Article 33 (3) PCT.

3.1 The technical problem underlying the present application is considered to establish an asymmetric pressure drop profile between inlet and outlet part of a low pressure fuel cell.

3.2 This problem is solved in a different manner, see D1.

3.3 Document D1 gives no hint, that the asymmetric pressure loss in the reaction gas distribution device (pressure loss in the feed device higher than in the extraction device) would advantageously be reversed.

Document D2 is considered to disclose a different technical field.

**4) Industrial Applicability**

The subject-matter of the present application is industrially applicable in the field of electrochemical generators.